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William A. Egan - Governor | Charles F. Herbert - Commissioner

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IN THIS ISSUE

AS GOOD AS GOLD

(Reprinted from Metals Week, April 15, 1974)

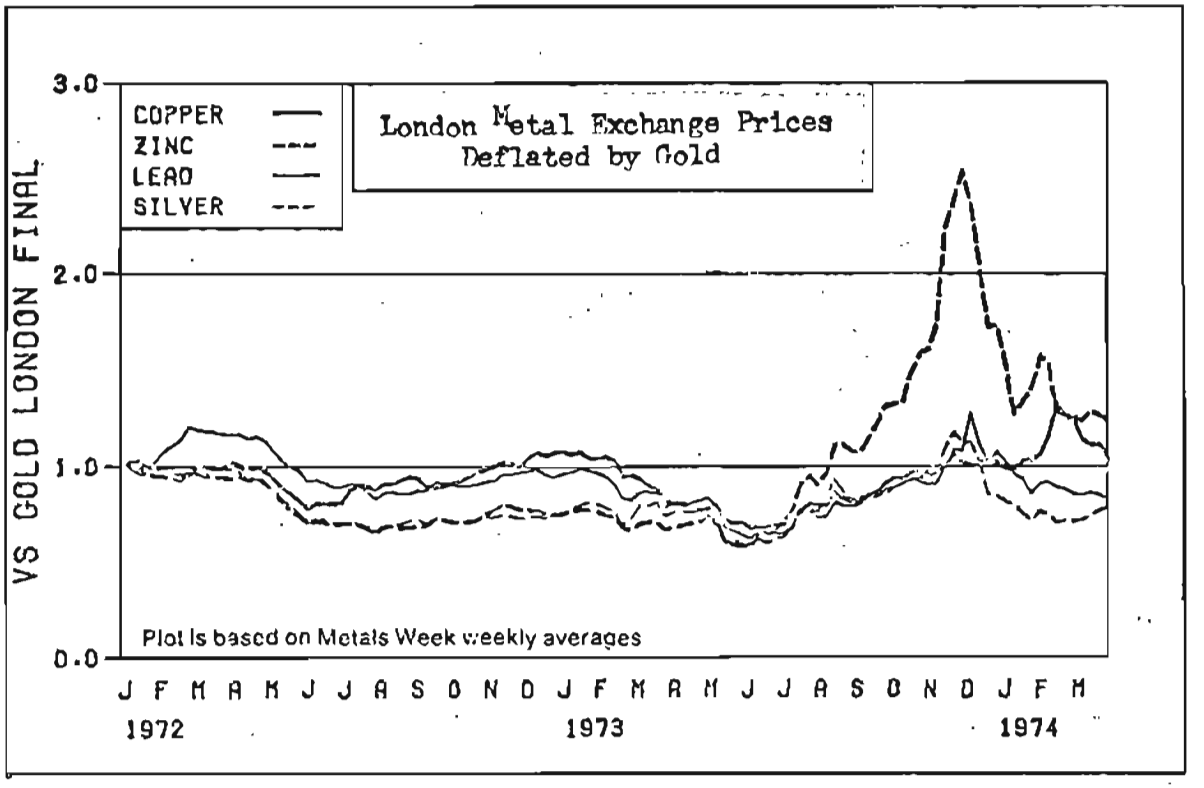
Even though gold has risen 289% since the beginning of Jan. 1972, the graph (p. 2) shows how very closely copper, lead, zinc, and silver prices on the LME have been staying in relation to gold.

Zinc, which peaked at 87.3¢ on Dec. 4, 1973, is the only metal to significantly change its basic price relationship with gold by more than 40%. But during the last two months all four metals are returning toward their Jan. 1972 price ratio to gold.

Such close tracking of inter-metal price ratios is indicative of strong speculative activity (rather than producer/consumer price hedging in a physical market where supply and demand are the traditional price factors). Traders are turning into a twin-breed, one engaging in straight hedging and the other switching from copper to silver to zinc, or whatever, as the market opportunity arises. However, only 10% of the LME turnover is speculative, according to LME chairman Frederick F. Wolff (MW, Apr. 8, p6). Another feature in today's market is currency shunting whereby a holder of yen might move into copper before cashing in the copper for deutschemarks.

The effects of market sophistication, currency nervousness, and speculation on the price of gold have, in turn, carried through to the LME, Comex, and the Mercantile Exchange. Traders even report that mercury and nickel are now being used as speculative commodities. So the old adage "as good as gold" also applies to copper, lead, zinc, and silver--at least on the LME.

Footnote: The graph is plotted using the METALS WEEK price database from Jan. 1972 to the end of Mar. 1974. It shows the index of the ratios of the weekly average cash prices for each metal to the London gold final quote. (The ratio in the first week of Jan. 1972 is equal to 1.0.)



The June-July 1973 dip in all the ratios is due to a higher-than-normal increase in gold prices during that period--the London final quote hit $123.30 per tr oz for the week ending July 6, 1973. Another interesting section on the graph is the drop in the silver-gold ratio since Dec. 1973. This is against a background of a "speculative bandwagon" in silver, with private investors stampeding into silver. Note also that the copper and silver ratios (to gold) have been moving in opposite directions since Feb. 1974.

COMMENTARY...by Cleland N. Conwell, DGGS Mining Engineer

With the increased world price of metals and pending shortage of metals, how does Alaska stand?

Alaska has extensive known reserves of gold. The larger ones are on the Seward Peninsula and offshore. UV Industries has reserves and dredges, and is in an excellent position to start production next summer ('75). ASARCO also has reserves offshore and could be producing in 2 to 3 years.

In other parts of Alaska, however, recommendations by the Secretary of Interior are preventing development. There are extensive deposits of gold, copper, and lead in the Kobuk region and in the area recommended for inclusion in the Kobuk Valley National Monument, Noatak Ecological Range, and Gates of the Arctic National Park. There are also extensive known deposits of gold, silver, lead, zinc, and antimony in the Kantishna district and production is increasing (Mines Bulletin, Nov. 1973); this area is recommended for inclusion in Mt. McKinley National Park. South of these is another area containing valuable minerals (gold, copper, tin); it too, is recommended for inclusion in the Park, with the land being withdrawn from mining. A known copper deposit near Lake Iliamna would be lost to the Iliamna National Ecological Park. East of Copper Center is the old mining area of the famous Kennecott copper mine; much of this area is known to contain more copper, but is included in the proposed Wrangell—St. Elias National Park. Further south is the Glacier Bay area, in which work on a copper-nickel deposit under lease to the Newmount Mining Company is being delayed because the area has been classified as a National Monument.

In 1970, U.S. Congress passed The Mining and Mineral Policy Act. The second annual report to Congress by the Secretary of the Interior states:

"However, despite our vast natural resources, we find increasing evidence that development of domestic mineral resources is not keeping pace with domestic demand, with consequent unfortunate effects upon the entire economy. For example:

* * Domestic exploration in 1972 continued its downward trend.

* * Some forms of energy have been in short supply.

* * Even with present domestic oil wells producing at full capacity, we imported 29 percent of our petroleum in 1972.

* * Domestic petroleum refining capacity is less than adequate to meet current demand and we import refined petroleum products.

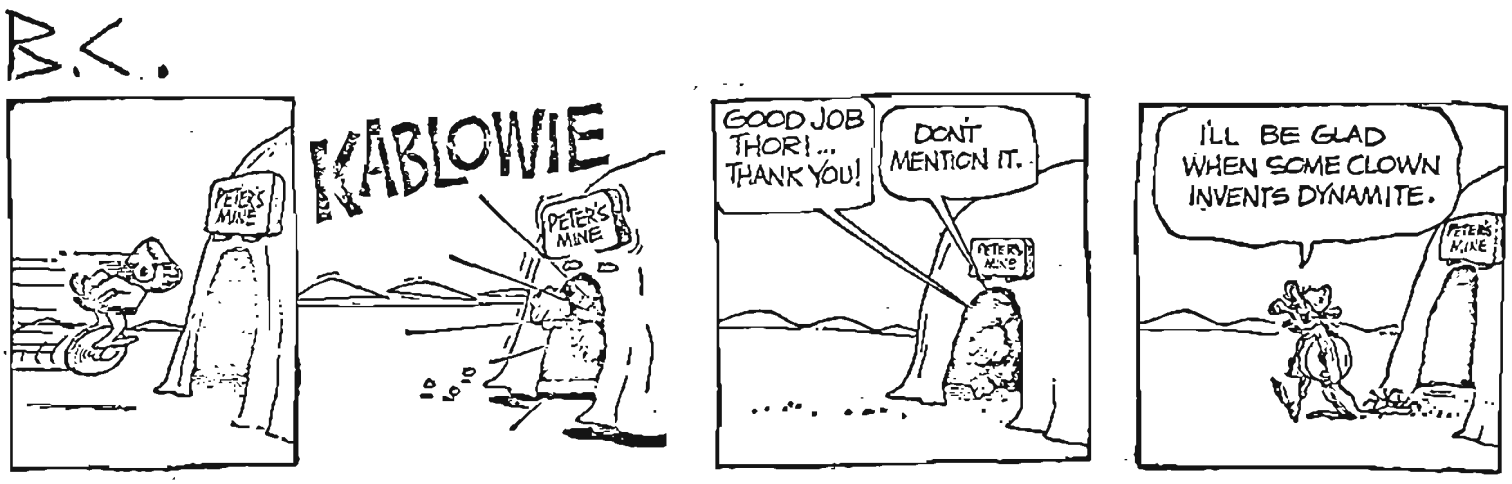
* * Over 17 million tons of steel were imported in 1972.

* * We have a deficit of $6 billion in the U.S. mineral balance of trade in 1972.

We are encountering greater difficulty and higher costs in acquiring mineral raw materials in foreign areas and we are also encountering greater difficulty in world markets in selling many manufactured articles.

Comparing forecast future U.S. demand trends with U.S. mineral production trends of the past two decades indicates that our annual deficit in the mineral balance of trade could approach as much as $100 billion by the Year 2000."

We have noted the increase in the price of metal prices (see chart and see Metals Market 'Year Ago' column, page 10). Most of us have experienced increases in fuel bills and gasoline. I feel therefore that the Secretary of the Interior is ignoring the needs of the people of the United States and the Congress of the United States when he continues to recommend locking up valuable mineral lands in Alaska to make national parks.



DGGS, U. OF A. SUMMER FIELD WORK SCHEDULED

Geologists from the DGGS and the University of Alaska who plan to work in Alaska during the 1974 field season are listed below. The reference numbers in the column correspond with the location numbers on the map. Most field parties plan on beginning operations in late May or early June.

DGGS

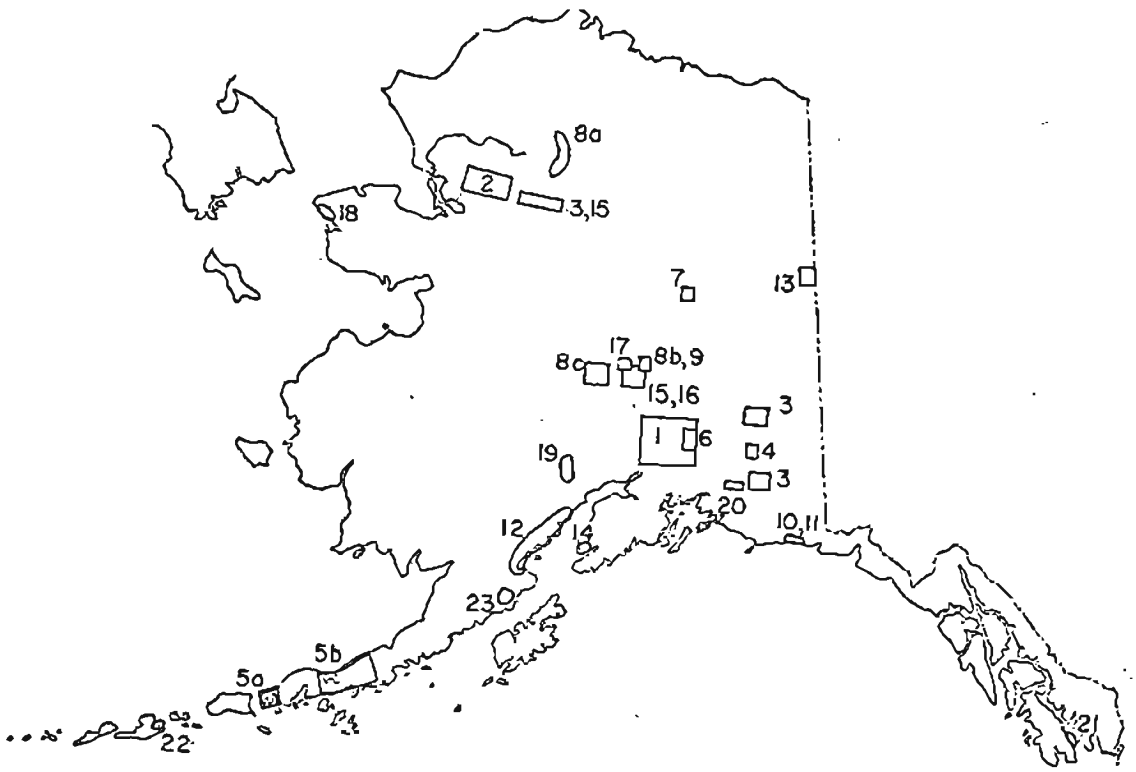
1.	D.L. McGee, M.W. Henning	Regional mapping and mineral investigation of Talkeetna Mountains.
2.	G.H. Pessel (with USGS)	Regional mapping and geochemical sampling; Baird Mountains.
3.	M.A. Wiltse	Investigation of south Brooks Range, Alaska Range, and Wrangell Mountains ore deposits.
4.	M.W. Henning, R.M. Klein (with Alaska Methodist U. Geology Dept.)	Mapping volcanic section in Sanford River valley; sampling for uranium background.
5.	W.M. Lyle, P.L. Dobey	Energy and mineral investigation, Alaska Peninsula

University of Alaska

6.	D.B. Hawkins*	Mapping sedimentary zeolite deposits of southeastern Talkeetna Mountains.
7.	F. Wilson	Investigating arsenic content of waters of Cleary Summit—Pedro Dome area; interior Alaska.
8.	T.D. Hamilton*	a) Quaternary stratigraphy, Killik River region; central Brooks Range. b) Geologic studies in support of archeologic excavation, Dry Creek area; Nenana Valley. c) Surficial geologic mapping, McKinley Park (with W.G. Gilbert).
9.	R. Thorson	Site geology, Dry Creek archologic site; Nenana Valley.
10.	C. Ariey	Age relationships at contact of Poul Creek and Yakataga Formations of Robinson Mountains, Gulf of Alaska; megafossil biostratigraphic analysis.
11.	R.C. Allison*	Supervising M.S. paleontology thesis, Robinson Mountains; Gulf of Alaska.
12.	C.W. Allison*, R.C. Allison*	Fossil collecting from Mesozoic formations (for U. of A. Museum); west shore, Cook Inlet.

*Faculty

13.	C.W. Allison*	Collecting microbiologic and geochronologic samples for study of Precambrian rocks, Tatonduk River; east-central Alaska.
14.	D.M. Triplehorn*	Radiometric dating of coal-bearing Tertiary sediments; Kenai Peninsula.
15.	W.G. Gilbert*	Structure and petrology of schist belt, western Brooks Range; geology of Healy C-6 and B-6, McKinley B-1 and C-1 quadrangles; central Alaska Range.
16.	J. Decker	Geology of Mt. Galen area, McKinley B-1 quadrangle; central Alaska Range.
17.	M. Bersch	Geology of Mt. Sheldon area, McKinley C-1 quadrangle; central Alaska Range.
18.	T. Patton, M.S. Robinson	Geology, geochemistry, and geophysics of Brooks Mountain, York Mountains; Seward Peninsula.
19.	S. Hackett	Geophysical interpretation of Tordrillo Mountains; southern Alaska Range.
20.	P. Metz	Geology of Chitina area; south-central Alaska.
21.	B. Peek	Geology of Niblack area, Prince of Wales Island; southeastern Alaska.
22.	E. Twelker	Mapping of Captain's Bay pluton, Unalaska Island; Aleutian Islands.
23.	R. Motyka	Field work, Mt. Katmai National Monument glaciers.



THE SMALL MINER: THE MINER'S CREED

by Arden L. Larson, President, Multi-Metals, Inc.
(Reprinted from The Mining Record, October 10, 1973)

Perhaps the most difficult time in the life of a small miner is that time when he is discouraged. We are all full of our ups and downs but when we are down we feel like taking a case of powder and blowing the hole shut. We live a life full of hardship and many disappointments. More often than not, we must take these rough times alone and that is the worst part.

Many of us turn to our family for encouragement, others turn to religion. We all turn to ourselves. We are all alike in many ways, we are miners. As miners we all exhibit a character so typical of our American heritage that we know why our country is so strong.

Many of you have visited my mill and read the creed that I have on my wall. Most of you have wanted copies of it. I can not claim this creed as an original, it came out of an unknown mining journal that I read several years ago. As soon as I read this creed I copied it and have lived by it ever since. When I get very discouraged I read it carefully, pick up my chin and my spirits and tackle the problem at hand. I am taking the liberty of introducing you to this creed in the hope that it can give some of you a pat on the back or a kick in the pants (which ever you need). It is:

Remember patience and perseverance are our trademark, hard work and hardship our life, and happiness and success our destiny.

BIRTH ANNOUNCEMENT

The Mines Bulletin, in keeping with its continuing tradition of hard-hitting, timely journalism, is proud to announce the arrival of Deborah Leigh Klein, 6 lb. 4 oz. She was born last March 25. Mother, daughter, brother Timothy, and father, DGGS stratigrapher Robert, are all reportedly doing fine. Congratulations, Bob and Janet.

AEROMAGNETIC FLIGHT PROGRAM BID LET

The Geometric Corporation of Palo Alto, California was the low bidder for the DGGS 1974 Aeromagnetic Field Program contract. Their bid of $5.95 per line mile was lower than three competitors: Aero Service Corp., Geoterrex Ltd., and LKB Resources.

Areas to be flown in the 1974 program are the western Brooks Range and the Ambler River and Baird Mts. quadrangles. The areas will probably be flown in June and July.

For the first time, the data will be digitally recorded in the aircraft and will be processed and contoured on maps by a high-speed digital computer. (Previous aeromagnetic flight programs have used analog recorders.) The finished aeromagnetic maps will be made available to the public in early 1975, following a general announcement of sale in the Mines Bulletin.

EVACUATION OF UNNAMED GLACIAL LAKE CONTRIBUTED TO 1971 MATANUSKA VALLEY FLOOD

by Don L. McGee, DGGS Petroleum Geologist

In August 1971, a flood occurred in Alaska's Matanuska Valley. It was caused by heavy precipitation and the breaking of a moraine dam, and resulted in extensive highway damage near the confluence of Granite Creek and the Matanuska River, 15 miles downstream (Anchorage D-6 quadrangle).

The west tributary of Granite Creek heads in several glaciers that contribute a substantial amount of water to the system. A small unnamed lake, 3/4 mile long and 1/2 mile wide, with about 1647 acre-feet of water, had been formed behind an end moraine about 2 miles downstream. It was the breaking of this dam and subsequent dumping of the lake that caused much of the damage. Fortunately, there was no habitation near the mouth of the creek, and no human life was lost during the peak flood period.

History

There were several periods of recognized glacial advance and retreat in the broad valley in which the lake was formed. The youngest glacial advance carried within its front the material to form the unconsolidated dam. This poorly sorted material ranged in size from very fine silt to 6-foot boulders. The natural dam extended across the valley for about 1/3 mile, and was over 500 feet wide near the discharge point.

As the glacier retreated, water filled the depression behind the dam to its spill point, and a 46-acre lake with a maximum depth of 94 feet was formed. When the spill point was reached, the excess water drained over the dam, forming a small glacial stream that flowed relatively slowly over the flat upper surface of the dam and increasingly faster down the steeper foreslope of the end moraine. The stream probably began excavating a V-shaped channel early in its history, and large boulders either remained in place or were dropped into the channel by the excavation of fine material. The velocity of the water at this time was not high enough to remove the boulders.

Geology

The lithology of the end moraine is predominantly unconsolidated light yellow and gray silts. However, the material is not sorted and the grain size ranges from clay size to boulders several feet in diameter. Individual grains are angular, and the angle of repose of the walls of the breached portion of the moraine is high. After the deposition of the moraine forming the dam was complete, the glacier retreated to its present position. Landslides of angular blocky boulders of quartz diorite then occurred. These slides covered both the east and west ends of the moraine, and extended almost to the middle of it. Talus from the eastern ridge is prevalent; the entire east shore of the lake is talus, consisting of large, angular blocks of quartz diorite. Most of the talus slopes are old and support vegetation. There is no evidence of recent landslides that might have contributed to the breaching of the moraine.

Flood

The major flood period for the Granite Creek drainage was August 8-11, 1971. Precipitation totals of 3 to 6 inches were recorded in the Palmer-Talkeetna area (Lamke, 1972). Leakage through the moraine itself was minimal because of the lack of lateral permeability. However, the combined normal flow from the melting glaciers and the runoff water from the drainage area rapidly eroded the soft till material. The breaching of the till dam probably began near the foreslope of the moraine and progressed rapidly to the lake. Erosion, once the lake was reached, was very rapid, and over 400 million gallons of water were discharged in a few hours.

The flood scoured the bed of the west fork of Granite Creek clean of all vegetation. It removed much of the sand-size sediments, leaving a sterile boulder flood plain. During the peak flow, large boulders weighing several tons were carried hundreds of yards downstream and deposited on the flood plain. Further downstream, where stream velocities were lower, an alluvial fan was formed below the confining canyon. The Glenn Highway was washed out in several places. The highway embankment on both sides of the bridge was washed out, and further west a secondary channel washed out a section of the highway. There was deposition of sand, gravel, and boulders in both the original stream channel and the secondary channel (Lamke).

A small body of water remains in the area where the glacier had previously excavated below base level. The channel through which the lake evacuated is V-shaped, with steep walls and cuts to the base of the unconsolidated morainal material. Scattered boulders have fallen from the walls and form a part of the stream bed in the channel. Vegetation is reappearing along the stream bed.

Conclusions

Rapid discharge of water from both natural and manmade dams pose a hazard to any human activity in the drainage area below the dam. Poorly sorted till is subject to rapid erosion when exposed to large stream flows, and natural lakes in glacial environments should be examined before human activity is established in these drainages.

Statistics

- Lake size: 46 acres; length, 3/4 mile; width, less than 1/2 mile.
- Lake elevation: 3352 feet.
- Elevation at bridge where Glenn Highway crosses Granite Creek: 490 feet (est).
- Maximum water depth of lake: 94 feet, measured near outlet of present stream.
- Average depth of water (entire lake): 35.8 feet.
- Acre-feet: 1647.
- Estimated water originally contained above base level: 430+ million gallons.
- Maximum discharge of Granite Creek during flood period: 58,600 cfs (Lamke).

Reference

Lamke, R.D., 1972, Floods of the Summer of 1971 in South-Central Alaska; U.S. Geol. Survey Water Resources Division Open File Report.

DGGS OPEN-FILE REPORTS TEMPORARILY WITHDRAWN

All but one of the DGGS open-file report series documents (AOF's) have been temporarily withdrawn from the purchasing public. They will be reissued following reformatting and standardization. One report, AOF-44, "Estimated speculative recoverable resources of oil and natural gas in Alaska," by R.M. Klein, P.L. Dobey, and K.M. O'Connor (8. p., map sheet---scale 1:250,000, $2.00), will remain on sale. It may be purchased from Petroleum Publications, Inc., P.O. Box 2278, Anchorage, AK. 99510. Despite the temporary withdrawal, the public may inspect all AOF's at all DGGS offices, including the following one, which will soon be released:

- AOF-46, Petrologic studies in the Fairbanks district: I. Molybdenum mineralization at the Silver Fox mine, by T.C. Mowatt.

Further details on AOF availability will be given in next month's Mines Bulletin.

IS THE NEXT CRISIS U.S. ORE IMPORTS?

(from The Mining Record, March 13, 1974)

CHICAGO, ILL. - The next shortage crisis to be inflicted on an already crisis-weary U.S. economy will likely involve imports of mineral ores vital to the expanding appetite of American industry. Ironically, the problem is not a matter of global shortages, but rather an inability to get sufficient quantities of these materials into the country to meet anticipated needs.

These observations have been drawn by Thomas N. Roseberry, President of Intec, Chicago economic and research consultants, after reviewing a series of studies on the problem conducted by the firm during the past five years. His conclusions are predicated on the fact that the U.S. is expected to import more than 60 million metric tons of ore (principally, iron and buaxite) annually in 1980, and has no docking facilities existing or planned to accommodate the growing fleet of superfreighters which have made transport of bulk goods today faster and more economical than at any previous time in the history of world shipping.

The Intec studies, Roseberry notes, indicate that there are presently 45 superfreighters (cargo-carrying vessels in the 100,000 to 260,000 deadweight tonnage range) hauling much of the 200 million metric tons of ore currently being transported by sea throughout the world. This total is expected to double by 1980, necessitating a need for 173 such ships at that time.

"Yet the United States does not possess a single functioning superfreighter berthing, nor plans to construct any in the foreseeable future," the consultant declares. "I believe we must begin municipal or private construction of these facilities immediately

to prevent an economic crisis caused by skyrocketing costs which could threaten our entire ore import program."

Intec, Inc., is a leading economic, research, and business management consulting firm providing specialized services to industrial companies domestically and internationally. Intec's services include: business, economic, product and market planning, as well as educational programs for management.

FORGOTTEN GOLD DUST FOUND

(from Western Mining News April 12, 1974)

Eleven bags of gold dust and gold ore, apparently untouched since the turn of the century, have been found in the dusty corner of a vault in the old mining camp of Cripple Creek.

District Court Judge William Rhodes said his clerk, Nell Anderson, found the bags in mid-March when she was cleaning out the vault in his office. It was under court records stacked in a corner of the vault.

The gold, worth perhaps $15,000, was driven in a state patrol car 75 miles north to Denver to the State Treasurer's vault.

The gold, a human skull and part of another, several revolvers, some maps and envelopes containing gold dust were found in the vault. Rhodes said he believed they were evidence from an old court case and had not been touched for between 65 and 80 years.

"I don't think anybody could claim it now," he said of the gold. "I don't think we could find any records that related to it."

Rhodes said he based his assessment of the value on the current gold price of $179.50 troy ounce. But he said there was no way he could be sure of the value.

At the turn of the century, Cripple Creek was a rip-roaring mountain town filled with miners and gold speculators. It is little more than a tourist stop today.

BETTER MINES & GARDENS DEPT...

Here's a couple seasonal recipes for our readers in The Bush. (If you have any Alaskan favorites of your own, drop us a line and we'll pass them along.)

Dandelion Soup

Succulent young dandelion leaves continue to be numbered among the very first wild edibles I gather while trout fishing in the early spring, especially because they combine so well with fish stock when you want to manufacture a zestful soup. You can come by this later in the season, too, just by cooking the dandelions longer.

The way to start enough for four is by sautéing a small grated onion with 2 tablespoons of butter in a saucepan until tender. Then pour in 2 cups of fish stock. Bring to a bubble. Stir in 4 cups of torn dandelion greens, including as many buds as reasonable. Simmer over low heat until the greens are wilted and tender, seasoning to taste with salt and freshly ground black pepper.

While this cooking is continuing, beat together 2 egg yolks and 1/2 cup heavy cream. Mix this into the soup and stir over low heat, well short of the boiling point, until the mixture thickens. Add any necessary salt and pepper, touch up with paprika, and serve.

Cattail Hotcakes

When the sausage-like flower spike of the widely known cattail (Typhaceae) becomes golden with thick yellow pollen, you can enjoy some unusual pancakes. First, collect a cup of pollen by rubbing or shaking it into a container or onto a cloth. Mix it with a cup of flour. Then sift together pollen, flour, 2 tablespoons baking powder, 2 tablespoons sugar, and 1/2 teaspoon salt.

Beat 2 eggs and stir them, along with 2 tablespoons melted butter, into 1-1/3 cups milk. Then rapidly mix the batter. Pour immediately in cakes the size of saucers onto a sparingly greased griddle, short of being smoking hot. Turn each hotcake only once, when the flapjack begins showing tiny bubbles. The second side takes only about half as long to cook. Serve hot with butter and sugar, or syrup.

METALS MARKET

	April 26, 1974	Month Ago	Year Ago
Antimony ore, stu equivalent European ore	$23.50-24.50	$21.50-22.50	$10.20-11.20
Barite (drilling mud grade per ton)	$17.00-21.00	$17-21	$18-22
Beryllium ore stu.	$30.00	$30.00	--
Chrome ore per long ton	$37.00	$37.00	$24-27
Copper per lb. (MW-prod.)	68.575¢	68.57¢	60¢
Gold per oz.	$169.30	$177.80	$90.90
Lead per lb.	21.5¢	19¢	16.0¢
Mercury per 76# flask	$283.00	$292.00	$300.00
Molybdenum conc. per lb.	$1.87	$1.87	$1.72
Nickel per lb.	$1.62	$1.62	$1.53
Platinum per oz.	$245.00	$225.0	$140
Silver, New York, per oz.	550.00¢	553.8¢	216.6¢
Tin per lb.	467.00¢	381.25¢	201¢
Titanium ore per ton (Ilmenite)	$38.00	$38.00	$22-24
Tungsten per unit	$57.52	$49.318	$55.00
Zinc per lb.	34.82¢	32.294¢	20.42¢

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